JC07 Rec'd PCT/PTO 1 5 JAN 2002

FORM PTO 1390 (REV. 11-2000 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

# TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY DOCKET NUMBER 124-00108

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

10/031628

INTERNATIONAL APPLICATION NO. PCT/GB00/02483	INTERNATIONAL FILING DATE 26 June 2000	PRIORITY DATE CLAIMED 15 July 1999		
TITLE OF INVENTION STORAGE AND RETRIEVAL SYSTEM				
APPLICANT(S) FOR DO/EO/US Philip T. BLENKINSOP	• •			
Applicant herewith submits to the United States Design	nated/Elected Office (DO/EO/US) the following items a	and other information:		
1. This is a <b>FIRST</b> submission of items concerning	ng a filing under 35 U.S.C. 371.			
•	ssion of items concerning a filing under 35 U.S.C. 371.			
indicated below.	examination procedures (35 U.S.C. 371(f)). The submis	ssion must include items (5), (6), (9) and (21)		
$4^{\frac{1}{1.5}}$ The US has been elected by the expiration of 1	9 months from the priority date (Article 31).			
5 A copy of the International Application as fil	led (35 U.S.C. 371(c)(2))			
a. 🗵 is attached hereto (required only if not	t communicated by the International Bureau).			
b. □ has been communicated by the Internal	ational Bureau.			
c. □ is not required, as the application was	filed in the United States Receiving Office (RO/US).			
6. A English language translation of the Internation	onal Application as filed (35 U.S.C. 371(c)(2)).			
a. □ is attached hereto.				
b. □ has been previously submitted under 35	U.S.C. 154(d)(4).			
	Application under PCT Article 19 (35 U.S.C. 371(c)(3)	))		
a. $\square$ are attached hereto (required only if n	ot communicated by the International Bureau).			
b.  have been communicated by the Intern	national Bureau.			
c. $\square$ have not been made; however, the time	ne limit for making such amendments has NOT expired.			
$d. \square$ have not been made and will not be m	ade.			
8. $\square$ A English language translation of the amendment	ents to the claims under PCT Article 19 (35 U.S.C. 371)	(c)(3)).		
9. $\square$ An oath or declaration of the inventor(s) (35 U	S.C. 371(c)(4)).			
10. A English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).				
Items 11 to 20 below concern other document(s) or	information included:			
11. 🗆 An Information Disclosure Statement under 37	CFR 1.97 and 1.98.			
12. $\square$ An assignment document for recording. A sep	parate cover sheet in compliance with 37 CFR 3.28 and	3.31 is included.		
13. 🗵 A FIRST preliminary amendment.				
14. □ A SECOND or SUBSEQUENT preliminary amendment.				
15. □ A substitute specification.				
16. □ A change of power of attorney and/or address letter.				
17. □A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825.				
18. □ A second copy of the published international application under 35 U.S.C. 154(d)(4).				
19. □ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).				
20.  Other items or information:				
☐ Applicant claims small entity status.				
☑ Supplement to Transmittal Letter.				

J.S. ATTECATION NO. (I MANUAL SEE ). CERTIFY		TORNEY'S DOCKET NUMBER		
10/031628 PCT/GB00/02483 124-00108			124-00108	
21.   The following fees as	re submitted:			CALCULATIONS PTO USE ONLY
Basic National Fee (37 CFR	1.492(a)(1)-(5)):			
Neither international preliming	ary examination fee (37 CFR 1	1.482)		
and International Search Repo	7 CFR 1.445(a)(2)) paid to US ort not prepared by the EPO or	JPO	\$ 1,040.0	0
International preliminary exan USPTO but International Sear	mination fee (37 CFR 1.482) north Report prepared by the EP	ot paid to O or JPO\$	890.0	90
but international search fee (3	nination fee (37 CFR 1.482) 17 CFR 1.445(a)(2)) paid to US	SPTO \$	740.0	00
International preliminary exar but all claims did not satisfy p	mination fee (37 CFR 1.482).p provisions of PCT Article 33(1)	aid to USPTO )-(4) \$	710.0	00
International preliminary exar	mination fee (37 CFR 1.482) p	aid to USPTO	S 100.0	00
but all claims satisfied provisions of PCT Article 33(1)-(4)			\$ 890.00	
Surcharge of \$130.00 for furnis months from the earliest claimed	hing the oath or declaration lat d priority date (37 C.F.R. 1.49	ter than [91(3)).	□ 20 🗵 30	+130.00
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total Claims	10 - 20 =		x \$ 18.0	)
Independent Claims	1 - 3 =		x \$ 84.0	)
MULTIPLE DEPENDENT CI	_AIM(S) (if applicable)		+ \$280.	00
TOTAL OF ABOVE CALCULATIONS = \$1,020.00				= \$1,020.00
Applicant claims small ent	city status. See 37 CFR 1.27.	The fees indicated above are re	educed by 1/2.	-
1.4/		SUBTOTAL	=	\$1,020.00
Processing fee of \$130.00 for f months from the earliest claime	urnishing the English Translati d priority date (37 C.F.R. 1.4	ion later than 92(f)).	□ 20 □30	+
		TOTAL NATIONAL	FEE =	\$1,020.00
Fee for recording the enclosed appropriate cover sheet (37 C.I	assignment (37 C.F.R. 1.21(h) F.R. 3.28, 3.31). \$40.00 per j	)). The assignment must be ac property	companied by an	+
		TOTAL FEES ENCL	OSED =	\$1,020.00
				Amount to be refunded:
				Charged:
a. ⊠ A check in the amount of \$1,020.00 to cover the above fees is enclosed.  b. □ Please charge my Deposit Account No in the amount of \$ to cover the above fees.  A duplicate copy of this sheet is enclosed.  c. □ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No 01.2000. A duplicate copy of this sheet is enclosed.  d. □ Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.				
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.				
SEND ALL CORRESPONDE ANDRUS, SCEAL	ENCE TO: LES, STARKE & SAWALL, n Avenue, Suite 1100 nsin 53202	LLP Daniel D.	Signature	1/15/02 Pate 1/15/02
Fax: (414) 271-577		Dunier D.	Name	Reg. No.

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#### PATENT

#### IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of	) Group Art Un:	it:
PHILIP T. BLENKINSOP	) Examiner:	
Int'l. Appln. No. PCT/GB00/02483	) STORAGE A: ) SYSTEM	ND RETRIEVAL
Int'l. Filing Date: 26 June 2000	) SISIEM )	

#### PRELIMINARY AMENDMENT

Milwaukee, Wisconsin 53202 January 15, 2002

**Box PCT Application** Commissioner for Patents Washington, D.C. 20231

Sir:

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It is requested that U.S. national stage examination be carried out on the amended claims dated June 4, 2001. Prior to computing the filing fee in this application, kindly amend the above identified application, as follows. The filing fee is to be computed on the amended claims.

# In the Abstract:

A clean copy of the Abstract as published is attached. No changes to the Abstract have been made.

#### In the Specification:

Please add the following paragraph at page 1, between the title and the first line of text as follows:

#### CROSS REFERENCE TO RELATED APPLICATION

The present application is the U.S. national stage application of International Application PCT/GB00/02483, filed June 26, 2000, which international application was published on January 25, 2001 as International Publication WO 01/05687. The International Application claims priority of European Patent Application 99305619.1, filed

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July 15, 1999.

#### SUMMARY OF THE INVENTION

Before the paragraph beginning at page 1, line 22, please insert the following:

#### BRIEF DESCRIPTION OF THE INVENTION

Before the paragraph beginning at page 2, line 10, please insert the following:

#### BRIEF DESCRIPTION OF THE DRAWING

Before the paragraph beginning at page 2, line 21, please insert the following:

#### DETAILED DESCRIPTION OF THE INVENTION

#### In the Claims:

Claim 1 has been amended as follows:

- 1. (amended) A storage and retrieval system comprising: at least one storage tray comprising plural storage holes; at least one gas supply port; and
- a gas supply manifold for supplying, in use, pressurised gas to the at least one gas supply port; wherein

the tray is arranged such that it can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurised gas can be applied to the selected hole via the port in order to allow controlled movement of a container storage in the selected hole to a position in which it can be retrieved from the tray.

#### Claim 2 has been amended as follows:

2. (amended) A system according to claim 1, wherein the gas supply port is configured such that the pressurised gas raises the container in use.

#### Claim 3 has been amended as follows:

3. (amended) A system according to claim 1, wherein each hole has retaining member for retaining a container therein.

#### Claim 4 has been amended as follows:

4. (amended) A system according to claim 1, in which there are provided plural trays, one arranged above another.

### Claim 6 has been amended as follows:

6. (amended) A system according to claim 1, in which the manifold has plural ports formed therein.

## Claim 7 has been amended as follows:

7. A system according to claim 1, in which the trays are circular in shape.

#### Claim 8 has been amended as follows:

8. A system according to claim 1, in which the trays are rotatable with respect to the manifold.

#### Claim 9 has been amended as follows:

9. A system according to claim 1, further comprising means for controlling, in use, the pressure of gas supplied through the manifold in order to control the velocity or position of a selected container during retrieval and/or insertion.

Please add the following claim:

10. A system according to claim 2, wherein each hole has retaining member for retaining a container therein.

Respectfully submitted,

Warmel D. Fetterles

ANDRUS, SCEALES, STARKE & SAWALL, LLP

Daniel D. Fetterley (Reg. No. 20,323)

100 East Wisconsin Avenue, Suite 1100Milwaukee, Wisconsin 53202(414) 271-7590Atty. Docket No. 124-00108 (C.12080-116)

#### CERTIFICATE OF EXPRESS MAIL

I hereby certify that this correspondence is being deposited with the United States Postal Service, with sufficient postage, as EXPRESS MAIL - POST OFFICE ADDRESSEE, in an envelope addressed to: Box PCT Application, Commissioner for Patents, Washington, D.C. 20231 on the 15 th day of January, 2002. The Express Label is EL812732676US.

Daniel D. Fetterley	20,323	
Name	Reg. No.	
Davil D. Fetterly	ilisloz	
Signature	Date	

#### ABSTRACT OF THE DISCLOSURE

A storage and retrieval system comprises at least one storage tray comprising plural storage holes. A gas supply manifold for supplies, in use, pressurized gas to at least one gas supply port. The tray can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurized gas can be applied to the selected hole via the port in order to allow controlled movement of container stored in the selected hole to a position in which it can be retrieved from the tray.

## **VERSION WITH MARKINGS TO SHOW CHANGES MADE**

#### Attorney Docket No. 124-00108

#### In the Specification:

Please add the following paragraph at page 1, between the title and the first line of text as follows:

#### CROSS REFERENCE TO RELATED APPLICATION

The present application is the U.S. national stage application of International Application PCT/GB00/02483, filed June 26, 2000, which international application was published on January 25, 2001 as International Publication WO 01/05687. The International Application claims priority of European Patent Application 99305619.1, filed July 15, 1999.

#### **SUMMARY OF THE INVENTION**

Before the paragraph beginning at line 22 of page 1 insert the following:

#### BRIEF DESCRIPTION OF THE INVENTION

Before the paragraph beginning at line 10 of page 2 insert the following:

#### BRIEF DESCRIPTION OF THE DRAWING

Before the paragraph beginning at line 21 of page 2 insert the following:

# **DETAILED DESCRIPTION OF THE INVENTION**

#### In the Claims:

Claim 1 has been amended as follows:

- 1. <u>(amended)</u> A storage and retrieval system comprising: at least one storage tray comprising plural storage holes; at least one gas supply port; and
- a gas supply manifold for supplying, in use, pressurised gas to the at least one gas supply port; wherein

#### Atty. Docket No. 124-00108

the tray is arranged such that it is can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurised gas can be applied to the selected hole via the port in order to allow controlled movement of a container storage in the selected hole to a position in which it can be retrieved from the tray.

#### Claim 2 has been amended as follows:

2. (amended) A system according to claim 1, wherein the gas supply portpaort is configured such that the pressurised gas raises the container in use.

#### Claim 3 has been amended as follows:

3. (amended) A system according to claim 1-or claim 2, wherein each hole has retaining member for retaining a container therein.

#### Claim 4 has been amended as follows:

4. (amended) A system according to claim 1 any preceding claim, in which there are provided plural trays, one arranged above another.

#### Claim 6 has been amended as follows:

6. (amended) A system according to claim 1 any preceding claim, in which the manifold has plural ports formed therein.

#### Claim 7 has been amended as follows:

7. A system according to <u>claim 1 any preceding claim</u>, in which the trays are circular in shape.

#### Claim 8 has been amended as follows:

8. A system according to <u>claim 1 any preceding claim</u>, in which the trays are rotatable with respect to the manifold.

# Atty. Docket No. 124-00108

Claim 9 has been amended as follows:

9. A system according to <u>claim 1 any preceding claim</u>, further comprising means for controlling, in use, the pressure of gas supplied through the manifold in order to control the velocity or position of a selected container during retrieval and/or insertion.

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### STORAGE AND RETRIEVAL SYSTEM

This invention relates to a storage and retrieval system.

storage and retrieval systems have, of course, been known for many years. In recent years there have been many attempts to alternate such systems in order to improve accuracy of storage, ensure stock records are accurate, and also to enable the employment of storage and retrieval systems as part of a larger automated process.

Such systems can be unwieldy, however. They tend to take up a considerable amount of space, require complex handling machinery, and can take a considerable amount of time to select and retrieve the necessary item. Two specific known systems are discussed in more detail below.

The present invention seeks to overcome some of the problems associated with prior art arrangements by providing a system which is extremely simple, requires minimal additional area to be provided for retrieval, and has speedy access to all of the stored items.

According to the present invention there is provided a storage and retrieval system comprising:

at least one storage tray comprising plural storage holes; and

a gas supply manifold for supplying, in use, pressurised gas to at least one gas supply port; wherein

the tray can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurised gas can be applied to the selected hole via the port in order to allow controlled movement of container stored in the selected hole to a position in which it can be retrieved from the tray.

The pressurised gas may raise the container.

Each hole may have a retaining member for retaining a container therein.

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There may be provided plural trays, one arranged above another. In this case, each tray may have at least one through port therein in order to allow a container to pass through the tray when the through port is aligned with a manifold port.

The manifold may have plural ports formed therein.

The trays may be circular in shape.

The trays may be rotatable with respect to the manifold.

An example of the present invention will now be described with reference to the accompanying drawings, in which:

Figs. 1 and 2 are schematic side views of two prior art storage and retrieval arrangements;

Fig. 3 is a schematic side view of an example of the present invention;

Fig. 4 is a side perspective and plan view of the example of Fig. 3; and

Fig. 5 is a schematic side view of an example of the present invention during operation.

Figs. 1 and 2 show examples of known storage and retrieval systems. In both cases containers 7 are stored in a regular matrix on trays 1 which are arranged vertically. In the arrangement of Fig. 1 sufficient space is left between each tray 1 in order to enable the lifting and removal of a container 7 by a retrieval arm 8. Such an arrangement requires a number of drive mechanisms to ensure adequate movement of the arm 8, and has reduced storage density because of the need to provide a clearance space for access by the arm 8 to individual containers 7.

Fig. 2 shows a second example in which trays 1 are stacked without any clearance space, and in which individual trays 1 can be drawn out of alignment with the other trays and an arm 8 employed to remove a selected container 7. Whilst this prior art device improves storage density, it still requires a complex retrieval drive mechanism, with the added complexity of a mechanism for

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moving individual trays 1. Because each tray 1 has a high mass, it can be extremely costly to provide a mechanism which moves the trays at high speed or, alternatively, the retrieval process can be slow. A further disadvantage is that a considerable amount of floor space is needed to accommodate the storage mechanism in view of the need to draw individual trays 1 out from the system.

Fig. 3 is a side cross-sectional view of an example of the present invention. Components corresponding to those shown in Figs. 1 and 2 are numbered identically. In this example trays 1 have a plurality of storage holes 2, each arranged to accept, in use, a container 7. Fig. 4 shows how the holes 2 are arranged circumferentially within an individual tray 1. The trays 1 are arranged so that they Each of the storage can rotate around a single axis 3. hole 2 has a container retaining member 4 associated therewith, the purpose of which will be described below. Each tray 1 also has at least one through port 5 which has a similar cross-sectional area to the holes 2, but which has no retaining member 4. The trays 1 are arranged such that the through ports 5 on each tray 1 can be aligned and also placed in alignment with a port 6 in a gas manifold positioned, in this example, below the trays 1. the port 6 supplies pressurised gas, in most applications air, up through the through ports 5. In most cases there will be a plurality of ports 6, the number of which corresponds to the number of through ports 5 provided in each tray 1.

The system of the invention can be arranged either to retrieve and store single containers or, alternatively, to remove a group of containers quickly without any particular need for a fixed sequence in which they are retrieved.

Fig. 5 shows the sequence of events when retrieving a single container. In the example of Fig. 5 slidable, rather than rotatable, trays 1 are shown, although the operation of both is very similar. In order to retrieve a container 7, the tray 1 containing the appropriate

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container 7 is moved to a position in which the desired container 7 is above port 6. All the other trays 1 are arranged such that their appropriate through port 5 is also in alignment with port 6. Pressurised gas is then applied through the port 6 and the container 7 is lifted from the retaining member 4 until it is proud of the top tray 1 in the system and in a position for retrieval. The tray containing the container can then be moved such that its through port 5 is in alignment once more with the port 6. Plural containers 7 may be obtained at any one time by the provision of plural through ports 5 in each tray 1 and the alignment of plural containers 7 above respective gas supply port 6, followed by the application of pressurised gas to all sets of through ports 5 in a single operation.

It will be appreciated that the system can be operated without support members 4 and with appropriate control of the supply of pressurised gas 6 to prevent a container falling downward through the aligned through ports 5 when it is in a position to be retrieved. Indeed, without the employment of such retaining members 4 and with appropriate control of the pressurised gas supply it is possible for containers to be dropped downward and retrieved from the base of the system. The gas supply can also be provided to control the raising and lowering rate of a particular container 7 to minimise any impact forces on the container 7.

The arrangement of the present invention enables a very simple handling mechanism to be provided yet does not compromise on the packing density provided by the system as a whole. Furthermore, it enables high speed retrieval of containers and therefore simple integration of the system as a whole as part of a larger automated process.

#### **CLAIMS**

A storage and retrieval system comprising:

at least one storage tray comprising plural storage holes;

at least one gas supply port ; and

a gas supply manifold for supplying, in use, pressurised gas to the at least one gas supply port; wherein

the tray is arranged such that is can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurised gas can be applied to the selected hole via the port in order to allow controlled movement of a container stored in the selected hole to a position in which it can be retrieved from the tray.

- 2. A system according to claim 1, wherein the gas supply paort is configured such that the pressurised gas raises the container in use.
- 3. A system according to claim 1 or claim 2, wherein each hole has retaining member for retaining a container therein.
- 4. A system according to any preceding claim, in which there are provided plural trays, one arranged above another.
- 5. A system according to claim 4, wherein each tray has at least one through port therein in order to allow a container to pass through the tray when the through port is aligned with a manifold port.
- 6. A system according to any preceding claim, in which the manifold has plural ports formed therein.

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- 7. A system according to any preceding claim, in which the trays are circular in shape.
- 8. A system according to any preceding claim, in which the trays are rotatable with respect to the manifold.
- 9. A system according to any preceding claim, further comprising means for controlling, in use, the pressure of gas supplied through the manifold in order to control the velocity or position of a selected container during retrieval and/or insertion.

# (19) World Intellectual Property Organization International Bureau



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# (43) International Publication Date 25 January 2001 (25.01.2001)

#### PCT

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- (21) International Application Number: PCT/GB00/02483
- (22) International Filing Date: 26 June 2000 (26.06.2000)
- (25) Filing Language:

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15 July 1999 (15.07.1999) EP

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- bourn Science Park, Cambridge Road, Melbourn, Royston, Herts SG8 6EE (GB).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): BLENKINSOP, Philip, Thomas [GB/GB]; 56 Chapel Lane, Fowlmere, Royston, Herts SG8 7SD (GB).

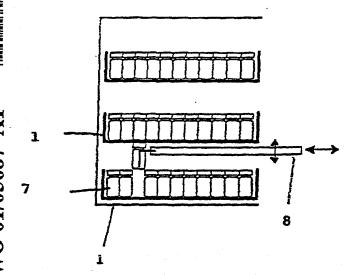
- (74) Agent: GILL JENNINGS & EVERY; Broadgate House, 7 Eldon Street, London EC2M 7LH (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
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#### Published:

With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: STORAGE AND RETRIEVAL SYSTEM



(57) Abstract: A storage and retrieval system comprises at least one storage tray comprising plural storage holes. A gas supply manifold for supplies, in use, pressurised gas to at least one gas supply port. The tray can be moved with respect to the manifold in order to align a selected storage hole in the tray with the port such that, in use, pressurised gas can be applied to the selected hole via the port in order to allow controlled movement of container stored in the selected hole to a position in which it can be retrieved from the tray.

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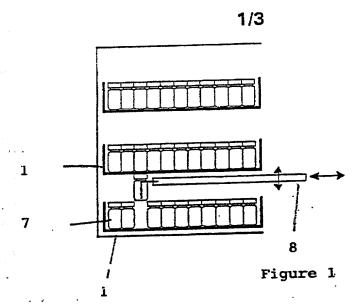
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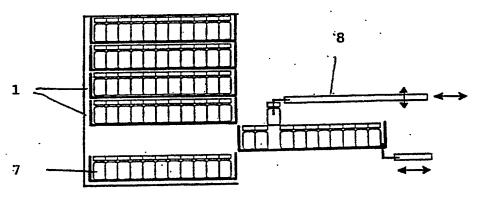


Figure 2

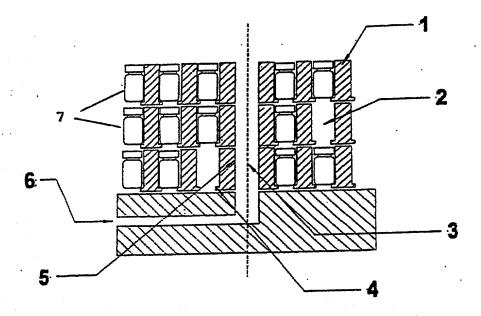
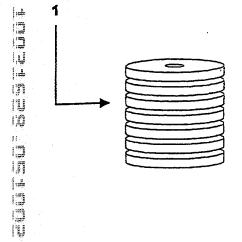


Figure 3



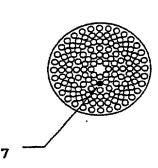
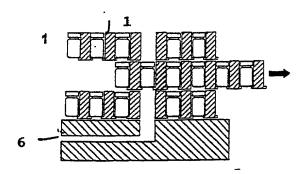
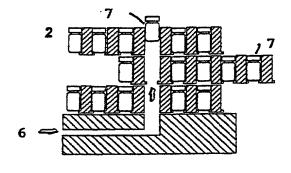


Figure 4



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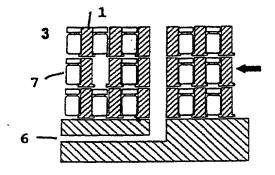


Figure 5

#### DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of subject matter which is claimed and for which a patent is sought on an invention entitled STORAGE AND RETRIEVAL SYSTEM

	the specification of which	is attac	hed hereto or			
	was filed on 26 JU Application Number PCT	JN 2000 as /GB00/0248	United States Applic	ation Number o	or PCT II (if	nternational applicable)
doon traff flash go	I hereby state that I has specification, including a acknowledge the duty to a 1.56. I hereby claim fore application(s) for patent of which designated at least have also identified below certificate, or PCT international priority is claimed:	the claims, as lisclose information ign priority ber or inventor's c one country c , by checking t	s amended by any a ation which is material nefits under 35 U.S.C. ertificate, or 365(a) o other than the United S the box, any foreign a	amendment ref to patentability 119(a)-(d) or 3 f any PCT inter States of Ameri oplication for a	erred to as define 65(b) of national ca, listed patent or	above. In din 37 CFR any foreign application below and inventor's
American and the first state of	Prior Foreign Application Number(s)	Country	Foreign Filing Date	Priority Not Claimed	Certifie Attache YES	d Copy ed? NO
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As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Glenn O. Starke 17,031; Eugene R. Sawall 17,431; Daniel D.Fetterley 20,323; George H. Solveson 25,927; Gary A. Essmann 29,376; Thomas M. Wozny 28,922; Michael E. Taken 28,120; Andrew S. McConnell 32,272; Joseph J. Jochman, Jr. 25,058; Peter C. Stomma 36,020; Edward R. Williams, Jr. 36,057; William L. Falk 27,709

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C 1001 and that such willful false statements may jeopardise the validity of the application or any patent issued thereon.

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